

**IAU General Assembly XXVI, Prague
Special Session 7**

ASTRONOMY IN ANTARCTICA

Tuesday 22 – Wednesday 23 August, 2006, Club E

Scientific Organising Committee: Michael Burton (Australia, Chair), Maurizio Busso (Italy), Eric Fossat (France), James Lloyd (USA), Mark McCaughrean (UK), Christian Spiering (Germany) and Shoji Tori (Japan)

Tuesday August 22

Session 1 Overview

Chair Eric Fossat

14:00	Introduction	5	SOC
14:05	An overview of Astronomy in Antarctica	30+5	Michael Burton
14:40	A decade of observations with AST/RO at the South Pole	30+5	Chris Martin
15:15	The IRAIT project – Italian Robotic Antarctic Infrared Telescope	12+3	Gino Tosti
15:30	<i>Coffee</i>		

Session 2

Chair Michael Ashley

16:00	Site testing at Dome C: history, present status and future	25+5	Jean Vernin
	High Energy		
16:30	Latest results on neutrino point source searches with the AMANDA telescope	25+5	Thierry Castermans
17:00	Status of the high energy neutrino observatory IceCube	25+5	Albrecht Karle
17:30	<i>Close</i>		

We hope that a (self-organised) dinner will be arranged for the evening. Will anyone with local knowledge of Prague and/or who may be help organise this please contact the Chair of the SOC.

Wednesday August 23

Session 3 Current Projects

Chair Eric Fossat

09:00	The AST/RO survey of the Galactic center region	15+5	Chris Martin
09:20	Single star scidar first light from Dome C	15+5	Jean Vernin
09:40	AMICA – the infrared eye at Dome C	15+5	Alberto Riva
10:00	Preparing a 20 μ m water vapour monitor (IRMA) for operations at Dome C	15+5	Robin Phillips
10:20	<i>Coffee</i>		

Session 4

Chair Michael Burton

11:00	PILOT – the pathfinder for an international large optical telescope	30+10	Michael Ashley
	Future Projects		
11:40	The Greenland icesheet as an astronomical site	15+5	Michael Andersen
12:00	Panoramic camera systems for meteor tracking and meteorite recovery	15+5	Noah Brosch
12:20	Plans for Chinese astronomy at Dome A	8+2	Xiangqun Cui
12:30	<i>Lunch</i>		

Session 5

Chair Michael Ashley

14:00	Australian – New Zealand – Antarctic (ANZAC) VLBI network	15+5	Sergai Gulyaev
14:20	Wide field surveys for sub-mm astronomy with CAMISTIC at Dome C	15+5	Vincent Minier
14:40	Antarctica – a case for 3D spectroscopy	15+5	Andreas Kelz

15:00 Prospects for Antarctic interferometry

15+5 Eric Fossat

15:20 *Coffee*

Session 6 16:00-17:40 Business Matters

Names in italics refer to people who have indicated they would like to give short contributions on the following topics. Please contact the Chair of the SOC if you also wish to contribute.

- Preliminary meeting of the SCAR Scientific Research Program Planning Group

At the SCAR meeting, held in Hobart in July (a bi-annual meeting of Antarctic scientists, equivalent to the IAU GA) a proposal to establish an Astronomy & Astrophysics research program within SCAR was endorsed by the delegates. This would make astronomy the sixth officially endorsed research program within SCAR, placing it on an equal footing with other Antarctic science research programs. A preliminary proposal needs to be prepared for the meeting of the SCAR Executive in May 2007. This is an opportune time for those interested in contributing to this proposal to discuss what may be needed. Some further information about this is appended to the end of this program.

Michael Burton.

- Limiting artificial backgrounds in Antarctica, e.g. EMI

Albrecht Karle (EMI), Chris Martin (for SPUC)

- Roadmap for future developments

Jean Surdej, Vincent Minier (sub-mm)

Evening

IAU GA Dinner

Poster Papers

Posters will be displayed in Terrace II (T2). Please obtain instructions for mounting them at registration.

The international Concordia explorer telescope: a joint telescope for atmospheric and astrophysical applications at Dome C	Klauss Strassmeier
Astronomical site testing of the Antarctic plateau	Jeremy Mould
Science with the High Elevation Antarctic Telescope (HEAT)	Wilfred Walsh
Romanian robotic telescope project for Antarctica	Petre Popescu
Technology for a remote automated Antarctic observatory	Michael Ashley
SNODAR: measuring the atmospheric turbulence in the lowest 100m of the atmosphere	Colin Bonner
The history of astronomy in Antarctica	Balt Indermuehle
AstroPoles – the astronomy program for the International Polar Year	Michael Burton
A test for the detection of vegetation on extrasolar planets: detection of vegetation in Earthshine spectrum	Danielle Briot
The Antarctic plateau: the ideal terrestrial site for extrasolar planet transit surveys?	Jessie Christiansen
The Gattini cameras for optical sky brightness measurements in Antarctica	Anna Moore
Optical sky brightness at Dome C, Antarctica	Suzanne Kenyon
Atmospheric scintillation at Dome C, Antarctica: implications for photometry and astrometry	Suzanne Kenyon
LAPCAT: the Large Antarctic Plateau Clear-Aperture Telescope	John Storey
PLATO – the next-generation AASTINO for robotic site-testing on the Antarctic plateau	Jon Lawrence
PILOT: optical configuration and instrumentation	Jon Lawrence
Polar night operation at Dome C with “Star Photometer” and ICE-T	Andreas Herber
Design and Construction of the Moving Optical Systems of IRAIT	Josep Colome

Proposal to establish the AAA Scientific Research Programme Planning Group
(Antarctic Astronomy & Astrophysics Expert Group; www.phys.unsw.edu.au/jacara/aaa.php)
As endorsed by delegates to the SCAR meeting in Hobart, July 2006

Astrophysical observations require minimum interference from the Earth's atmosphere, low thermal *background*, low absorption, and high angular resolution. The moderate "launch costs" for Antarctic plateau observatories make them an attractive alternative to space.

Astronomy from the Antarctic came of age in the last decade with a cosmological result of major significance. Balloon-borne millimetre observations of the cosmic microwave background from the first BOOMERANG flight led directly to the discovery of the zero-curvature Universe. Submillimetre astronomy has also prospered in the Antarctic: the South Pole Telescope is expected to deliver a large-area survey of the hot gas in clusters of galaxies with a uniquely uniform redshift distribution; this will probe the nature of "dark energy", the biggest constituent of a "flat" Universe.

Now is the time for SCAR to initiate, as its sixth program, *Astronomy & Astrophysics from Antarctica*, aimed at understanding the overarching ecological processes in the Universe, the birth of stars and of planetary systems around other stars, the return of heavy element enriched materials to the interstellar medium, and the formation of molecular clouds.

SCAR will add value by fostering international collaboration in order to permit goals to be achieved that are beyond those of single national programs. SCAR's approach to broad scientific programs is to define themes within the program. Some themes for AAA will be exoplanet biosignatures, high angular resolution, time domain astrophysics, microwave cosmological background radiation studies, and the physics of molecular clouds.

In the next two years the AAA Planning Group will consult with the community, clarify the objectives of the research in these and other proposed astrophysical themes, and create a roadmap that will allow groups to make progress towards achieving these goals.

The notion of precursor projects is a useful one in road-mapping. National goals will differ for facilities of common interest. It is important to pursue the scientific goal of a facility all the way to the science. A multi-wavelength approach will be necessary to meet SCAR's expectations for a full AAA program. Multidisciplinary links outside astronomy also need to be addressed in the roadmap.

SCAR can enhance the scientific value of Antarctic astronomy by moving to establish the AAA Scientific Research Programme at this time. The benefits of coordination and international collaboration will be keenly felt. A strong AAA program will also strengthen the accomplishments of SCAR, which exists to promote frontier science driven coordination and collaboration.

The AAA Scientific Research Programme planning group will be made up of members of the existing AAA Action Group plus other contributors, and will produce a preliminary proposal for the 2007 SCAR Executive with a view to submission of a full, formal proposal to the 2008 SCAR meeting in St Petersburg. Once the AAA Scientific Research Programme is established, the AAA Expert Group will be dissolved.

Jeremy Mould and John Storey for the AAA Expert Group, July 14 2006.

Comments

Currently there are five Scientific Research Programs within SCAR, and this will make Astronomy the sixth. It will place Astronomy on an equal footing with the other disciplines for the first time. See <http://www.scar.org/researchgroups/>. We need to prepare a preliminary proposal for the meeting of the SCAR Executive in May 2007. Assuming this is accepted, a full proposal will then go to the 2008 SCAR meeting. As an example of what is needed, please see the proposal for ICESTAR at <http://www.scar.org/researchgroups/physicalscience/icestar/>.

Speakers

The meeting room has all the usual A/V equipment, including its own laptop. The organisers request speakers use this laptop, but you may use your own laptop if necessary. Please visit the Speaker Preparation Room at least 4 hours before you give your talk (on the foyer of the 3rd floor), and then see the technician in the meeting room by at least the break before your own talk to upload your presentation (the room will be open from 8am to 6pm).

Publication

The proceedings of this Special Session of the IAU GA will be published in the next edition of *Highlights of Astronomy*, volume 14 (editor-in-chief Karel van der Hucht, Cambridge University Press, UK). We have been allocated 30 pages, and (*only for those authors who informed the SOC Chair they wished to publish*) this mean 2 pages per paper (or a maximum of 3 pages for the three authors who have two presentations). This will be confirmed at the meeting.

The templates and style files can be found at www.phys.unsw.edu.au/jacara/iau, in the file templates.tar. There are three files: the template <template.tex>, the IAU document class file <IAU-TrB.cls> and the copyright form <IAU-Copyright-Form.pdf>.

The deadline for return of completed manuscripts will be Friday September 15th. This is a hard deadline, necessary to ensure that the IAU meets its contractual requirements with the publishers. Manuscripts not received by this date will not be included in the proceedings!